CANADA

National Energy Board

Reasons for Decision

Alberta and Southern Gas Co. Ltd.

GH-5-88

May 1989

Gas Exports

National Energy Board

Reasons for Decision

In the Matter of

Alberta and Southern Gas Co. Ltd.

Application Pursuant to Section 21 of the *National Energy Board Act* for a Change, Alteration or Variation to Natural Gas Export Licence GL-99

GH-5-88

May 1989

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Recital and Appearances

IN THE MATTER OF the *National Energy Board Act*, R.S.C. 1985, C.N. 7 (the "Act") and the Regulations thereunder;

AND IN THE MATTER OF an Application by Alberta and Southern Gas Co. Ltd. ("Alberta and Southern" the "Applicant") for an Order to vary Gas Export Licence GL-99.

HEARD at Calgary, Alberta on 6, 7 and 8 December 1988.

BEFORE:

R.B. Horner, Q.C.	Presiding Member
A.B. Gilmour	Member
D.B. Smith	Member

APPEARANCES:

M.A. Putnam A.A. Fradsham	Alberta and Southern Gas Co. Ltd.
R. DeWolf	Independent Petroleum Association of Canada
L. Keough	Boundary Gas, Inc.
H. Williamson	Consumers' Gas Company Ltd., The
C. MacFarlane	Foothills Pipe Lines (Yukon) Ltd.
J.H. Smellie	ICG Utilities (Ontario) Ltd.
D. Bews	Mobil Oil Canada
D.A. Dawson	Pan-Alberta Gas Ltd.
R.B. Brander	Poco Petroleums Ltd.
K.J. MacDonald	ProGas Limited
G. Durham	Shell Canada Limited
R. Valdis	Union Gas Limited
A.R. Androsoff	Westcoast Energy Inc.
M. Stauft	Western Gas Marketing Limited
S. McAllister	Alberta Petroleum Marketing Commission
R. Milner	British Columbia Petroleum Corporation
P.D. Morris C. McCue	Minister of Energy for Ontario
H.T. Soudek	National Energy Board

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Chapter 1

The Application

By its application dated 27 November 1987, as amended, Alberta and Southern Gas Co. Ltd. ("Alberta and Southern" or the "Applicant") requested the National Energy Board ("the Board"), pursuant to subsection 21(2) (formerly subsection 17(2)) of the Act, to amend natural gas export Licence GL-99 as follows:

(i) to extend the term of the Licence from 31 October 1994 to 31 October 2010;

(ii) to provide for daily and annual exports of 31 897 200 cubic metres (1,126 MMcf) and 10 580 448 200 cubic metres (373.5 Bcf) respectively; and

(iii) to increase the term quantity by 169 287 171 200 cubic metres (6.0 Tcf).

Alberta and Southern exports gas at Kingsgate, British Columbia to Pacific Gas Transmission Company ("PGT") for delivery to the northern California markets served by Pacific Gas and Electric Company ("PG&E").

A public hearing was held in Calgary on 6 to 8 December 1988 to deal with this application.

A key issue at the hearing was the extent of Alberta and Southern's reliance upon supply under development contracts to support the proposed export and the weight the Board should give to the supply associated with such development contracts.

A development contract is one in which not all gas reserves are established at the time the contract is executed. Rather, the contract provides for the timely development of potential reserves and assures the seller of a market for its future supplies and the buyer of a supply for its future gas requirements.

Reasons for Decision

Section 118 of the Act requires the Board, in considering an application for a licence to export gas, to have regard to all considerations that appear to it to be relevant. In particular, the Board is required to satisfy itself that the quantity of gas to be exported does not exceed the surplus remaining after due allowance has been made for reasonably foreseeable Canadian requirements, taking account of trends in discovery.

To comply with the requirements of section 118 of the Act, the Board utilizes its Market-Based Procedure. This procedure includes consideration of the following: complaints, if any, under the complaints procedure; an export impact assessment; and other factors which the Board considers relevant in its determination of the public interest including, net benefits to Canada, the Applicant's gas supply as it relates to reserves and productive capacity, upstream and downstream transportation arrangements and markets.

2.1 Complaints Procedure

The complaints procedure provides an opportunity for Canadian gas-users to object to an export proposal on the grounds that they cannot obtain additional gas supplies under contract on terms and conditions, including price, similar to those in the export licence application.

Alberta and Southern argued that no party to the hearing had presented a formal complaint that it could not obtain additional gas supplies on terms and conditions similar to those contained in Alberta and Southern's application. The Applicant also noted that nothing was preventing Canadian distributors from entering into development contracts with their own suppliers, if they desired to purchase gas under terms and conditions similar to those which Alberta and Southern had entered into with its suppliers. In summary, Alberta and Southern submitted that its application would in no way compromise the ability of Canadian users to adequately satisfy their gas requirements.

Union Gas Limited ("Union") argued that there are currently problems in the domestic market that inhibit the ability of Canadian gas-users to compete for additional gas supplies. For example, Union stated that there are problems in obtaining removal permits for direct purchases of gas from Alberta and, consequently, its negotiating power with its primary supplier, Western Gas Marketing Limited ("WGML"), was limited. More generally Union argued that there were constraints in the domestic market which placed it at a competitive disadvantage with export purchasers. In light of these constraints, Union argued that it would be inconsistent with the intent of the Market-Based Procedure to license undiscovered gas reserves for export at a time when Canadian users were not well-positioned to compete for additional gas supplies.

Union filed a letter dated 8 November 1988 that it had sent to Alberta and Southern which contained an offer from Union to enter into negotiations for up to 3.2 billion cubic metres (30 Bcf) per year from the Applicant under similar terms and conditions as offered to PGT. The intent was to purchase the gas starting in the mid 1990's for a 10 or 15 year term. Union stated that negotiations were not successful for the larger quantity of gas and consequently Union requested a smaller volume of 85 to 110 million cubic metres per year (3 to 4 Bcf) for delivery commencing in November of 1989, but no agreement was reached on this lesser volume. Alberta and Southern explained that it did not want to dabble in the eastern Canadian market because it did not make economic sense to dedicate

staff and time to arrange transportation to get gas to Union. The Applicant stated that its main responsibility was the California market.

The Board agrees that there is some basis to Union's argument that there are at present competitive constraints in the domestic market which affect the ability of Canadian gas-users to satisfy their gas needs on freely-negotiated terms. The Board notes that its first *Natural Gas Market Assessment*, released in December 1988, also concluded that certain impediments remain in the domestic market that inhibit the ability of certain Canadian gas-users to obtain gas on competitive terms and conditions.

The eastern Canadian distribution companies argued that granting the full, applied-for licence term, when not all of the gas reserves necessary to support the exports had yet been discovered, could reduce the effectiveness of the Market-Based Procedure. The Consumers' Gas Company Ltd. ("Consumers'") argued, for example, that although a Canadian user might have no basis for a complaint at the time of an export licence application, it would be precluded from making its views known in a public hearing at the time the additional supplies came on stream. The result of licensing large volumes of undiscovered reserves for export, in the distributors' view, would be to reduce the protection to domestic gas-users that the Market-Based Procedure was originally intended to provide.

In the Board's view, the effectiveness of the Market-Based Procedure in protecting the Canadian public interest would not necessarily be compromised if it were to grant an export licence for which not all of the reserves had yet been discovered. Whether the public interest would be compromised depends upon several considerations including: the size of the applied-for export volumes; the proportion of the applied-for export volume that is supported by established reserves; whether specific lands with a reasonable potential for discovery of additional reserves were dedicated to the export contract; the degree of uncertainty about future supply and demand conditions; the expected benefits from the export sales; and whether domestic purchasers can effectively compete with export customers for additional gas supplies. Every export licence application must be evaluated having regard to its own specific merits.

2.2 Export Impact Assessment

The purpose of the Export Impact Assessment ("EIA") is to allow the Board to determine whether a proposed export is likely to cause Canadians difficulty in meeting their energy requirements at fair market prices. It is not intended to be used to protect Canadians from rising energy prices; rather its purpose is to determine whether the energy market would be able to operate in an orderly and efficient manner, were the applied-for export volumes to be licensed.

The EIA originally filed by Alberta and Southern as part of its original application was updated in response to information requirements identified by the Board.

Alberta and Southern's EIA stated that:

> *"World energy prices and, therefore, Canadian energy prices will not be affected at all by the export of Alberta and Southern's applied-for volume of gas to California .... Virtually all of the external pressures on the Canadian gas industry, including those from other competing fuels will be roughly the same whether Canadian gas exports are allowed to remain at the existing level or not .... the exports could have no significant impact on any of the world energy prices that have to be counted as major determinants of energy costs within Canada."*

The Applicant was not cross-examined by any intervenor in respect of the EIA. In response to Board counsel's questions concerning the determination of natural gas prices in Canada, Alberta and Southern stated that natural gas prices are linked to oil prices and if oil prices remained low for a sustained period of time, natural gas prices would also be low. However, Alberta and Southern agreed that natural gas prices must cover supply costs and that gas would be produced only to the point where the market price covered such costs.

With respect to the ability of Canadian energy consumers to switch from natural gas to an alternate fuel, Alberta and Southern asserted that there would be more investment in fuel-switching equipment if energy prices were unstable.

The Board is of the view that natural gas supply costs are an important determinant of natural gas

prices in the long run, and that the production and export of the volumes as contemplated in the Alberta and Southern proposal could increase natural gas supply costs, relative to a situation in which the natural gas was left in the ground for future Canadian consumption.

The export volumes applied for by Alberta and Southern represent, on an annual basis, approximately 20 percent of 1988-89 Canadian requirements for natural gas. Accordingly, it is the Board's view that the proposed export could have a major impact on the Canadian natural gas producing sector.

While the Board does not concur with each of the arguments put forward by Alberta and Southern in its EIA, the Board nonetheless finds that the proposed export is not likely to cause Canadians difficulty in meeting their energy requirements at fair market prices.

2.3 Gas Supply

The discussion of gas supply is broken into separate sections as follows: the Applicant's supply contracts, established reserves, potential reserves and productive capacity. Before considering the Applicant's reserves it is necessary first to examine the extent to which and the conditions under which producers have committed lands and reserves to Alberta and Southern. From this base, reserves and productive capacity are assessed.

2.3.1 Supply Contracts

In the course of the hearing the Applicant provided a detailed description of its gas purchasing policies and how those policies and practices were reflected in the supply contracts that support its exports to California.

Alberta and Southern stated that it currently has sufficient reserves to meet present requirements. However, starting in the early 1990s, additional supplies will have to be phased in to offset declining deliverability. Alberta and Southern has made commitments to its producers to maintain its takes under existing contracts and this has prevented it from taking on new supply at this time. In order to acquire additional supplies for future delivery Alberta and Southern is using development contracts.

These development contracts permit Alberta and Southern to meet its current contractual commitments to take gas from the existing supply base while at the same time securing incremental longer term supply. For producers, many of whom are trying to sell their established reserves as they are connected, the attraction of development contracts is that they can secure a contract now for gas supplies that they can develop over the next few years.

A more detailed discussion of Alberta and Southern's gas purchase contracts from current fields and development contracts which cover established reserves in new fields and potential reserves in development lands follows.

Gas Purchase Contracts

Alberta and Southern has over 500 gas purchase contracts with some 185 producers in Alberta. These contracts represent supply from current fields.

Alberta and Southern stated that it had formally offered to extend to 2010 all of its producer contracts that are currently set to expire before 2000. Although the Applicant had not, at the time of the hearing, received answers from all of its producers to its offer, it was confident that the agreements would all be extended. The Applicant noted that Shell Canada Limited, one of Alberta and Southern's major suppliers, had agreed to the extension.

The Company had also polled its producers to determine the level of support for the licence extension. The results indicated that 91 percent of producers, by volume, supported the extension.

Development Contracts

A development contract differs from a conventional gas purchase contract in that not all reserves are established at the time it is executed. Under the terms of a development contract, the producer dedicates specific development lands in which it has both existing established reserves and the right to explore for and develop new reserves. The development contracts specify a date of first delivery that gives the producer time to find and develop reserves on its land and install production facilities.

The development contracts provide for Alberta and Southern and the producers to make a joint study of the reserves and deliverability in development lands. If such a study determines that the reserves or deliverability are insufficient to meet the original contracted volume, the producer has one year to resolve the problem, failing which the daily contract quantity may be reduced at Alberta and Southern's option. Conversely, should the study indicate that reserves or deliverability exceed the contract, Alberta and Southern has a 60-day period within which it can elect to take the excess volumes.

Alberta and Southern testified that, in late 1984, the PacGas producers, a group of six producers exploring for and developing reserves in northeastern British Columbia, had approached Alberta and Southern with a proposal to dedicate lands in exchange for a firm delivery date. In 1986, Alberta and Southern signed development contracts with the PacGas producers with production scheduled to commence in late 1989. This gave the producers the lead time for the necessary exploratory and development work. The Applicant indicated that, since the signing of this agreement, the PacGas producers had drilled 74 wells with 30 more planned for the 1988/89 season and more in 1989/90.

In addition to the PacGas producers, Alberta and Southern has signed development contracts in British Columbia with Czar Resources Ltd. and Esso Resources Canada Ltd., and has letters of intent with Canadian Hunter Exploration Ltd. and Webb International Minerals Inc. It is expected that approximately 80 wells will be drilled in the 1989/90 season pursuant to the terms of development contracts.

In late 1986, Alberta and Southern signed letters of intent with producers holding lands in northeastern Alberta and since that time has signed development contracts or letters of intent with approximately a dozen producers in Alberta.

By letters dated 31 March 1989 and 27 April 1989, Alberta and Southern advised the Board that it has signed development contracts with Gulf Canada Resources Limited, Morgan Hydrocarbons Inc., Poco Petroleums Ltd., AEC Oil and Gas Company, and Quintana Exploration Canada Ltd. As well, it has sent formal contracts for final execution to Shell Canada Limited, Chevron Canada Resources, Webb International Minerals, Inc. and Canadian Hunter Exploration Ltd. Alberta and Southern is continuing its negotiations with 3 other producers including the British Columbia Petroleum Corporation ("BCPC"). Negotiations with ProGas Limited, which were the subject of testimony during the hearing, were terminated without a contract being signed.

Production from the Applicant's development contracts is to commence in late 1989 with the majority of the reserves to be connected by 1993.

The Applicant admitted that there is a risk that not all producers will find the reserves necessary to meet their contractual requirements; however, because some producers may find excess supplies, and because Alberta and Southern has first right of refusal for any volumes in excess of the contract volumes, it believes that, in total, sufficient reserves will be found on the dedicated lands to meet its requirements.

Alberta and Southern stated that continued access to the strong California market will provide producers with sufficient incentive to proceed with exploration and development on the committed lands. In addition, the annual takes from the individual producers will depend upon their success in finding and developing gas reserves.

Alberta and Southern stated that it plans to continue to utilize development contracts for future gas supplies to meet reserves and deliverability requirements.

None of the intervenors at the hearing was opposed to the use of development contracts *per se*, although some thought it was an unnecessary contracting procedure. However, WGML, Union, Consumers' and ICG Utilities (Ontario) Ltd. ("ICG (Ontario)") were all opposed to the use of the potential reserves under these development contracts to underpin exports. There were two reasons for this opposition: intervenors would be deprived of any opportunity to compete for these reserves in the future; and there is a possibility that potential reserves could be, in effect, double-booked. That is, the same potential might be relied on to support more than one export proposal.

These four intervenors argued that in assessing an application for an export licence, the Board should only consider established reserves.

The Minister of Energy for Ontario ("Ontario") did not oppose the use of development contracts but stressed that any export extension should be conditioned upon the Applicant filing evidence that the letters of intent with producers had been fully executed.

The Board believes that the development contract is a sound business practice and an innovative, practical means of ensuring future supply to meet requirements by encouraging the economic development of new reserves. Development contracts provide producers with the incentive to explore for and develop new gas reserves in a timely fashion to correspond with market demand. This should help ensure reasonable rates of take under the gas purchase contracts.

In assessing whether potential supplies under development contracts should be relied upon to support licence authorizations, it is the Board's view that development contracts filed in support of an application must meet certain minimum criteria. The Board would expect that a development contract would normally be in respect of lands that have both proven reserves and a reasonable potential for future discoveries of reserves.

With regard to the specific development contracts and letters of intent that Alberta and Southern has put forward, the Board has relied on the Applicant's letters of 31 March and 27 April 1989 to determine whether negotiations were sufficiently advanced to allow these supplies to be included in reserves and deliverability calculations. Of the 12 sets of negotiations that were underway at the time of the hearing the Board has included reserves and deliverability under the agreements with nine companies, namely:

- Canadian Hunter Exploration Ltd.;
- Gulf Canada Resources Limited;
- Morgan Hydrocarbons Inc.;
- Poco Petroleums Ltd.;
- AEC Oil and Gas Company;
- Quintana Exploration Canada Ltd.;
- Shell Canada Limited;
- Chevron Canada Resources; and
- Webb International Minerals, Inc.

The Applicant's and the Board's estimates of supply found in the following sections of this report reflect adjustments to Alberta and Southern's supply to include supply from current and new fields and from development contracts with the above companies.

2.3.2 Established Reserves

Alberta and Southern provided estimates of established reserves of marketable natural gas under contract with producers in the provinces of Alberta and British Columbia that it would use to meet its existing commitments (approximately 57 billion cubic metres [2.0 Tcf]) and the proposed export. The Applicant sub-divided its estimate of established reserves into current and new fields. The current fields estimate includes those pools under gas purchase contracts signed with the Applicant's existing producers in Alberta; the new fields estimate represents the established reserves on the lands dedicated to the Applicant under development contracts with its new producers in Alberta and British Columbia as listed previously.

The Board has analyzed Alberta and Southern's contracted supply and has prepared its own estimate of the Applicant's remaining marketable gas reserves under contract. The comparison of these estimates is presented in Table 1. (See Appendix II for this table in imperial units)

Table 1
Estimates of Remaining Established Reserves Available to Alberta and Southern
(Billion of Cubic Metres)

Supply	**Alberta and Southern**[1]	**NEB**[2]
Current Fields[3]	126.7	118.4
New Fields[4]		
Alberta	29.9	19.2
British Columbia	11.0	10.0
Total Established	167.6	147.6

1. The Alberta and Southern estimate of remaining established reserves is as of 1 October 1988.
2. The Board's estimate of remaining established reserves is as of 31 December 1987. (The 10-month discrepancy in the estimates does not significantly affect their comparability).
3. Existing gas purchase contracts.
4. Mainly development contracts with the nine companies listed previously.

The Board's estimate differs from that of the Applicant primarily due to differences in interpretation of pool area and various other reservoir parameters.

As indicated above, there are several sets of negotiations ongoing that the Board has not recognized, at this time, as being sufficiently complete to warrant inclusion of the reserves in the calculation of Alberta and Southern's established reserves. The Applicant's estimate included approximately 16.3 billion cubic metres (462 Bcf) in this category, the majority of which was gas under negotiation with the BCPC.

2.3.3 Potential Reserves Under Development Contracts

Alberta and Southern estimated that, in addition to the established reserves shown in Table 1, there were approximately 74 billion cubic metres (2.6 Tcf) of potential gas reserves on lands dedicated to development contracts.

The Board's assessment of the gas reserves potential on the development contract lands is somewhat less than that estimated by Alberta and Southern.

Table 2

Estimates Of Productive Capacity From Established Reserves
(Billions of cubic metres)

		NEB		Alberta and Southern[1]	
Year	**Estimated Demand**	**Productive Capacity**	**Surplus/ (deficit)**	**Productive Capacity**	**Surplus/ (deficit)**
1988	11.4	15.7	4.3	12.9	1.5
1989	9.9	14.5	4.6	11.8	1.9
1990	10.2	14.5	4.3	12.0	1.8
1991	10.5	14.2	3.7	12.4	1.9
1992	10.7	13.8	3.1	12.5	1.8
1993	10.7	12.8	2.1	12.5	1.8
1994	10.9	11.8	0.9	12.1	1.2
1995	10.9	10.8	0.0	11.2	0.3
1996	10.9	9.7	(1.2)	10.4	(0.5)
1997	10.9	8.4	(2.5)	9.7	(1.2)
1998	11.1	7.0	(4.1)	9.1	(2.0)
1999	11.1	5.3	(5.8)	8.4	(2.7)
2000	11.2	4.7	(6.5)	6.4	(4.8)
2001	11.1	3.8	(7.3)	5.8	(5.3)
2002	11.3	3.0	(8.3)	4.8	(6.5)
2003	11.4	2.7	(8.7)	4.1	(7.3)
2004	11.4	2.4	(9.0)	3.7	(7.7)
2005	11.6	2.1	(9.5)	3.4	(8.2)
2006	11.6	1.9	(9.7)	2.9	(8.7)
2007	11.6	1.7	(9.9)	2.2	(9.4)
2008	11.6	1.5	(10.1)	1.5	(10.1)
2009	11.6	1.1	(10.5)	1.0	(10.6)
2010	9.5	0.9	(8.6)	0.9	(8.6)

1 Alberta and Southern's productive capacity was adjusted by the Board using a rate cumulative methodology. Productive capacity is generally the estimated rate at which gas can be produced from a reservoir and is dependent upon prior production from the reservoir. The rate cumulative method is a means of determining productive capacity by taking account of expected levels of production over time.

2.3.4 Productive Capacity

Productive capacity is the rate at which established reserves can be economically produced.

The Applicant provided projections of productive capacity from both established reserves under its gas purchase contracts (current fields) and from lands dedicated under development contracts. The latter includes the established reserves classified as new fields in Table 1 and development supply from potential reserves on those lands. The Board adjusted these projections using a rate cumulative methodology to reflect the Applicant's requirements under the proposed export licence.

Table 2 on page 7, compares the Board's projection of productive capacity, which was calculated from its estimate of established reserves shown in Table 1, with Alberta and Southern's projection of productive capacity which is based on its estimate of established reserves in Table 1 as amended by the Board to exclude development contracts which are still the subject of negotiation. (Appendix III shows Table 2 in imperial units.)

The Applicant's and the Board's projection (Table 2) show that requirements can be met from already established reserves until 1995. The deficiencies in productive capacity are greater in the Board's estimate primarily because of its lower estimate of established reserves.

Figure 1 in Appendix IV is a graphic representation of the data in Table 2 and illustrates the Applicant's and the Board's estimates of supply available from established reserves as well as supply needed from new reserves to meet Alberta and Southern's estimated requirements throughout the proposed licence term.

Table 3 is a comparative analysis of the Board's and Alberta and Southern's projections of the ability of the Applicant to meet requirements over the

Table 3

Analysis of Supply Necessary to Meet Requirements
(Billions of cubic metres)

	1995-2005		**2006-2010**	
Total Requirements	**122.9**		**56.0**	
	A&S	**NEB**	**A&S**	**NEB**
Established Reserves from Current Fields	46.9	38.1	4.8	3.2
Established Reserves from New Fields	29.9	21.7	3.7	3.9
Total Established	76.8	59.8	8.5	7.1
Reliance on Established Reserves	63%	49%	15%	13%
Required Supply from Potential Reserves under Development Contracts and New Contracts	46.1	63.1	47.5	48.9
Reliance on Supply from Potential Reserves under Development Contracts and New Contracts	37%	51%	85%	87%

first 11 years of the application and over the last five years of the application. (See Appendix V for this table in imperial units.) It indicates that for the period 1995 to 2005, the Applicant's assessment is that it would rely on contracted potential reserves to meet 37 percent of its requirements, whereas the Board's projection for the same period indicates that some 51 percent of the requirements would have to be met by potential reserves, some of which may not yet be under contract. From 2006 to 2010 both Alberta and Southern and the Board estimate that about 85 percent of the requirements would have to be met by new reserves.

For the period up to 2005, the Board believes that Alberta and Southern has demonstrated that lands under its development contracts have a sufficiently high potential for reserves additions to make up all or most of the productive capacity needed to meet its requirements. The Board believes that in this case, with virtually no major new facilities required and a proven, highly dependable northern California market, reliance on the anticipated level of contracted potential reserves to support licence requirements is acceptable. However, the indicated heavy reliance on new reserves in the last five years of the proposed licence term goes beyond what the Board considers acceptable.

2.4 Energy Removal Authorizations

Alberta and Southern proposes to export natural gas from Alberta and British Columbia, and removal authorizations are required from both provinces.

The Applicant holds Alberta Energy Resources Conservation Board ("AERCB") removal permit AS-85-1 which allows for gas to be removed from Alberta until the year 2000. The Applicant stated it would be applying to the AERCB for an extension of this permit to the year 2010.

Alberta and Southern also holds British Columbia energy removal certificate 10(8604) which allows the removal of gas from that province until the year 2004. The Applicant has applied to British Columbia for a new certificate to the year 2010.

2.5 Transportation Arrangements

Alberta and Southern exports gas to PGT at Kingsgate, British Columbia for delivery to PG&E in northern California. Alberta-sourced gas is transported in Alberta on NOVA an Alberta Corporation ("NOVA") facilities for delivery to the facilities of Alberta Natural Gas Company Ltd. ("ANG") in British Columbia. ANG transports the gas across southeastern British Columbia to PGT at the international border near Kingsgate, British Columbia.

PGT, a wholly-owned affiliate of PG&E, transports the gas across the states of Idaho, Washington and Oregon and delivers the gas to PG&E at the Oregon-California border. PG&E then transports and delivers the gas to its customers throughout northern California including its major load centres in Sacramento and San Francisco.

The related transportation agreements between Alberta and Southern and both NOVA and ANG are to continue concurrent with Alberta and Southern's export authorizations. The Applicant submitted that transportation arrangements for its future British Columbia-sourced gas would be entered into as required. No major facilities on the NOVA, ANG, PGT or PG&E systems are required to facilitate the proposed exports. However, expenditures of about $100 million will be necessary to connect new reserves in the British Columbia Deep Basin region to the NOVA system.

2.6 Market and Gas Sales Contracts

Alberta and Southern exports gas to PGT pursuant to its 31 January 1961 Gas Sales Agreement. As part of its application, Alberta and Southern filed a copy of a letter agreement dated 23 November 1987 that provided for the continuation of an average daily volume up to 29 million cubic metres (1.023 Bcf) for the period 1 November 1994 to 31 October 2010. PGT agreed to purchase the gas on the terms and conditions of the existing, as amended, sales contract dated 31 January 1961. Under the terms of this gas sales contract, the pricing provision consists of a monthly demand charge equal to the total fixed costs of transportation in Canada, plus a three-tier commodity rate. The first tier is the base commodity rate and at the time of the hearing was set at $U.S. 1.69/GJ ($U.S. 1.81/MMBtu). The base rate is negotiated between the buyer and seller and has been fixed for periods of six months to one year. Recent negotiations provided for a price of $U.S. 1.77/GJ ($U.S. 1.90/MMBtu) for a 15-month period. The second and third pricing tiers are negotiated monthly. The second tier competes with spot gas purchases into

PG&E's supply portfolio while the third tier is negotiated to compete with direct end-user sales in the marketplace. The contract includes a 50 percent minimum annual take or pay level.

The parties agreed that, upon receipt of the required authorizations, they would finalize daily contract quantities that would be applicable during the extended period.

Alberta and Southern stated that the delivery volumes specified in the amended gas sales contract with PGT are compatible with existing NEB authorizations. They submitted that the contract provides for the recovery of Canadian fixed costs through a demand/commodity pricing structure. The tiered pricing schedule provides for competitive pricing of the gas supply, and the 50 percent take or pay provision helps to assure a minimum revenue stream to Canadian producers in return for their supply commitment.

As part of its application, Alberta and Southern filed a market report prepared by PG&E in March 1988. This report outlined PG&E's expected supply and demand requirements by market sector and supply area for the period 1988 through 2010. PG&E's average market growth rate is forecast to be approximately one percent per year with requirements increasing from 20.9 billion cubic metres (737 Bcf) in 1988 to 26.0 billion cubic metres (918 Bcf) in 2010. The continued Alberta and Southern/PGT exports are forecast to make up about 40 percent of PG&E's annual requirements during this period.

The Applicant noted that Canadian gas has traditionally provided about 40 percent of PG&E's total system supplies but, over the last few years, Alberta and Southern's supplies have accounted for over 50 percent of PG&E's annual requirements. This was largely attributable to El Paso Natural Gas Company's ("El Paso") recent inability to price long-term gas supplies competitively. Since October 1986, PGT has purchased gas from Alberta and Southern at a 98.7 percent load factor.

Alberta and Southern stated that the historically high rate of take for its gas, the competitive terms and conditions of its contract with PGT, the equitable purchase provisions between PG&E and PGT, and the forecast long-term growth for PG&E's market present strong arguments for an extension of the licence to the year 2010.

The Board finds the market and requirements data provided by the Applicant to be reasonable and concurs with the Applicant that competitively priced gas supplies from Canada are likely to continue to play a vital role in satisfying PG&E's market demand.

2.7 Commercial Necessity for Length of Term Requested

Alberta and Southern requested that its existing export Licence GL-99 be extended from the current expiry date of 31 October 1994 to 31 October 2010. In support of this proposed 16-year extension, the Applicant cited as its main argument that its customer, PG&E, required long-term arrangements for gas supply and wanted to enter into supply contracts ranging from 15 to 25 years. To achieve this goal Alberta and Southern has attempted to contract for additional gas supplies in Alberta and British Columbia. The Applicant noted that its Canadian producer contracts have historically been tied to the length of its provincial removal permits and gas export licence.

Alberta and Southern also stated that regulatory approvals for terms up to 20 years were necessary in order to allow for the amortization of any facilities that are required to be constructed. However, the Applicant testified that its transportation contracts with NOVA and Westcoast are for 15-year terms, during which term Alberta and Southern would be responsible for paying all fixed costs of transportation through payment of the demand charge. The Applicant also stated that only about $100 million in additional facilities would be necessary to transport the proposed export quantities.

The Applicant stated that a longer licence term would be preferable because Alberta and Southern's contracting procedure is to replace declining deliverability of between 2.1 and 2.8 million cubic metres (75-100 MMcf) per day in a staged manner each year so that new supplies would be coming on line over time. As Alberta and Southern enters into commitments with producers and transporters, say in 1995 or 1998, it would prefer to have an export licence term that supported these commitments from that point in time.

PG&E also presented argument for the need for the approval of the full, applied-for licence term. It stated that the California Public Utilities Commission and the California Energy

Commission supported the concept of a long-term supply commitment from Canada. PG&E testified that it was in the process of developing a new supply portfolio in which Canadian gas would have a key role. In its view a licence term less than 2010 would send a "very seriously deleterious" signal to the marketplace at a time when PG&E has access to other, not previously available, supply alternatives. These alternative supplies would come from conventional United States sources, including up to 11.3 million cubic metres (400 MMcf) per day from California producers under 20-year purchase contracts. It was also stated that PG&E has entered into 10-year contracts for certain direct purchases off the El Paso system for up to 7.1 million cubic metres (250 MMcf) per day.

PG&E also testified that it was continuing to develop other such longer term supply arrangements, but that Canadian gas would undoubtedly continue to be a foundation of PG&E's supply base.

Consumers' argued that since there was no significant investment in new facilities, an extension to the licence term for 16 years could not be justified. Further, Consumers' stated that no valid reasons were put forward to support the applied-for term and that a 16-year extension, wherein the later years of the licence were not supported by established reserves, would interfere with the workability of the complaints procedure.

ICG (Ontario) expressed similar concerns with respect to the proposed licence term and suggested that the extension should only be granted to 2004. Countering Alberta and Southern's statements that its contractual chain reflected the proposed 16-year licence extension, ICG (Ontario) argued that Canadian local distribution companies' ("LDCs") contracting practices, as well as Alberta's energy removal permit term of 15 years, would be a more appropriate way of determining the length of a licence extension. ICG (Ontario) went on to say that a licence term to 2004 would not be viewed as a negative signal by either the California core market or by California large volume end-users. Rather, these customers would view an 11-year licence extension to 2005, as they would existing United States supply arrangements of similar duration, as being a firm, long-term and reliable source of supply. ICG (Ontario) was also concerned that the longer licence term would not be supported by established reserves in the later years of the licence.

Union stated that a licence extension to 2010 would be premature and unnecessary at this time and that licences should be supported by established reserves under contract. Union argued that a licence extension to 2004 supported by established reserves would provide a better signal to the marketplace than a licence to 2010 which relied on development supplies.

WGML expressed similar concerns to those of other intervenors with respect to the relationship between established reserves and licence term.

BCPC supported Alberta and Southern's request for a 16-year extension, noting that a lesser term might prevent the Applicant from honouring its contractual commitments under its development contracts.

Ontario did not oppose the proposed 16-year extension to Alberta and Southern's licence, nor did it object to the use of development contracts to support the licence. Ontario did state, however, that Alberta and Southern should be required to file proof that these development contracts had been executed and were not in the form of letters of intent as had been submitted in evidence by the Applicant.

The Board's consideration of an appropriate licence term includes all factors which are relevant to each application. With respect to this application the Board is of the view that an important consideration is whether the full, applied-for licence term is required by commercial necessity. In its consideration of commercial necessity the Board assessed whether the full term applied for is necessary:

- to amortize any facilities that may be required;
- to ensure the export is competitive with other sources of supply in the final marketplace; and
- to permit the Applicant to competitively pursue its business of purchasing gas in Canada.

The Board does not consider that the $100 million cost of additional Canadian facilities which will be required to transport the incremental volumes is a major capital investment relative to the size of the proposed export. Accordingly, a licence term to 2010 does not appear necessary to amortize this investment. (The $100 million must be taken in the context of total export revenue from the

Alberta and Southern sale which is currently some one billion dollars per year).

The Board is of the view that a shorter licence term than applied for would not adversely affect Alberta and Southern's competitive position in the California market. Rather, from the evidence presented, the Board considers that a term extending approximately 15 years from the present, supported by a market-responsive sales contract, would meet PG&E's needs in developing a diverse supply portfolio made up of long-term and reliable gas supplies.

Finally, the Board believes that Alberta and Southern's position with its producers would not be prejudiced by a shorter term licence, particularly in light of the current terms of provincial removal permits being issued and the competition from other buyers of gas in western Canada.

2.8 Benefit-Cost Analysis

Table 4 shows the summary results of the benefit-cost analysis which Alberta and Southern submitted in support of its application. The study indicates that the applied-for exports should yield net benefits to Canada of approximately $2.7 billion in the base case, assuming an eight percent discount rate, and a range of net benefits from $2.25 billion to $3.25 billion assuming a ten percent and six percent discount rate respectively.

The Applicant's analysis assumed an export price of $2.43/GJ ($2.61/MMBtu) in 1989, with real price increases of one percent per annum thereafter. Gas by-product revenues were calculated at 25 percent of the value of the gas production associated with the exports. A load factor of 100 percent was assumed for the life of the contract.

Alberta and Southern estimated that production costs would remain constant at $0.67/GJ ($0.72/MMBtu) ($1987) until 1999, and would escalate at approximately eight percent per year thereafter. This rapid increase in costs is the result of switching from established reserves to newly developed reserves.

The transportation costs shown in Table 4 represent the incremental fuel and operating costs associated with transporting the export volumes. No allowance was made for incremental pipeline facilities costs because the exports would be shipped on existing transmission facilities. However, at the hearing the Applicant indicated that a new pipeline that connected Alberta and Southern reserves in the Deep Basin in British Columbia to the NOVA system would be constructed at a capital cost of approximately $75 million. With the addi-

Table 4
Benefit-Cost Analysis of the Applicant's Export Proposal
(millions of 1987 $)

	Discount Rate		
	6%	**8%**	**10%**
Export Revenue	7,596.9	5,933.4	4,687.5
By-Product Revenue	1,936.6	1,512.5	1,194.9
Total Revenue	9,533.5	7,445.9	5,882.4
Production Costs	2,862.2	2,185.2	1,689.1
Transportation Costs	218.2	171.1	135.7
User Costs	3,179.5	2,404.1	1,805.4
Total Costs	6,259.9	4,760.4	3,630.2
Net Benefits	3,273.6	2,685.5	2,252.2
Benefit/Cost Ratio	1.52	1.56	1.62

tion of some new gathering facilities that would be required on the NOVA system in Alberta, incremental capital costs associated with the construction of new pipeline facilities were estimated to total about $100 million.

The Applicant's estimates of user costs were based on social supply prices for natural gas published by the Board in 1984, adjusted downwards by 10 percent. Remaining natural gas reserves were assumed to be 20 percent higher than estimated by the Board in 1984.

In summary, the Applicant argued that its exports would provide significant net benefits to Canada and that it would be in the Canadian public interest to grant the licence.

No intervenors disputed the reasonableness of the submitted results and none argued that the proposed exports would not yield net economic benefits to Canada.

The Board considers the Applicant's forecast of export prices to be reasonable. However, Alberta and Southern's assumptions with respect to by-product revenues and the assumed 100 percent load factor may be somewhat optimistic. At the same time, the Board recognizes that Alberta and Southern's export sales have traditionally provided attractive netbacks to Canadian producers and that export sales have been flowing at close to 100 percent of contracted volumes in recent years.

The fact that existing transmission facilities will be largely used to transport the applied-for volumes is, in the Board's view, an important advantage in favour of the application. The $100 million estimated capital cost for the new gathering facilities and the pipeline connection to the Deep Basin in British Columbia is relatively small compared to annual export revenues.

The Applicant's view of future natural gas supply costs used in the calculation of user costs is within the range of other available projections, such as that published in the Board Staff's September 1988 Supply and Demand Report.

In summary, the Board is satisfied that Alberta and Southern's exports will provide substantial net benefits to Canada. However, the net benefits are likely to be less than estimated by the Applicant once appropriate adjustments are made to the estimates of transportation costs.

Disposition

Section 118 of the NEB Act requires that the Board, in considering an application for a licence to export gas, have regard to all considerations which it deems relevant. Section 118 also requires that the Board license for export only those volumes of natural gas which do not exceed the surplus remaining after making due allowance for reasonably foreseeable Canadian requirements, taking account of trends in discovery.

As noted in Chapter 2, the Board complies with the requirements of section 118 of the Act by using its Market-Based Procedure. Under this procedure the Board considers complaints by Canadian gas-users taking into account current conditions in Canadian gas markets, the Export Impact Assessment, and whether the proposed export is likely to result in net benefits to Canadians. The Board also examines all other factors relevant in its determination of the public interest, including the nature of the gas supply, and transportation and sales arrangements to ensure that the application represents a substantive commercial arrangement. These factors, as well as the Applicant's and intervenors' evidence and argument and views of the Board have been discussed in detail in the previous chapter.

No party to the hearing alleged that it could not obtain additional gas supplies on terms and conditions similar to those of Alberta & Southern's proposed exports, however, some parties contended that, in general, there are constraints operating in the Canadian market which inhibit fully competitive contracting conditions.

The Applicant submitted an EIA which indicated that the applied-for exports, if approved, would not be likely to cause Canadians difficulty in meeting their energy requirements at fair market prices. The findings of this assessment were not challenged by any parties to the hearing and the Board, while questioning some of the arguments advanced by Alberta and Southern, does not disagree with the overall conclusion.

The benefit-cost analysis indicates positive net benefits to Canada. In addition, the Board considers the northern California market to be a proven and highly dependable market for Canadian gas and believes that it will remain so over the term of the extended licence.

In the Board's view there are a number of factors related to the application which militate in favour of a shorter licence term than that applied for. The Board believes that, in the circumstances of this case, granting the full, applied-for licence term at this time would not be in the public interest.

In making this finding, the Board is of the view that its Market-Based Procedure would be more effective if its decisions provided for consideration of the desirability of exports on a more, rather than less frequent basis. The Board recognizes, however, that the appropriate licence term will vary depending on the particular circumstances of each case.

In determining the appropriate period for which to extend Alberta and Southern's licence, the Board was particularly influenced by the evidence before it on the Applicant's gas supply arrangements and on the commercial necessity for the applied-for licence term.

With respect to gas supply, the Board is satisfied that the Applicant has available to it sufficient productive capacity from existing established reserves to meet its requirements until 1995 after which time Alberta and Southern would face a shortfall in its productive capacity unless additional reserves were added. However, with the inclusion of gas supply under development contracts which, in the Board's view, offer a reasonable potential for gas to be discovered, the Board

estimates that productive capacity can be sustained to meet Alberta and Southern's requirements to about the year 2005. In the event of any shortfall, it seems reasonable to expect that, given the attractiveness of this market, producers would want to supply it. Supply for the period beyond 2005 is not considered by the Board to be nearly as secure as for the earlier period.

As noted above, the Board also considers the question of commercial necessity in deciding upon an appropriate licence term. In general the Board feels that an export authorization should be of a duration that permits the Applicant to pursue its business without adverse commercial consequences, but is not longer than commercially necessary. Specifically, facilities investments must be amortized, the sale must be competitive in the marketplace and the Applicant should be permitted to competitively pursue its business of purchasing gas in Canada. In its assessment of the above factors the Board concluded that an export licence to 2005 would provide the Applicant with sufficient long-term security to pay for facilities and to successfully compete for supply and market; the Board concluded that commercial factors did not require that a longer licence be issued.

While the Applicant applied for a licence term to 2010, the Board has decided to grant a term which will expire in 2005. It is the Board's view that this term is appropriate, taking account of evidence at the hearing concerning current conditions in the Canadian natural gas market, the nature and magnitude of the Applicant's supply and its contracts with producers; and the commercial necessity for the arrangement over the term sought.

The Board is of the view that an extension of Alberta and Southern's Licence to 2005 will signal to PG&E's customers that Canadian gas supplies will be available over the long term.

In conclusion, the Board is satisfied that the requirements of section 118 have been met for the period up to 2005. While the Applicant requested an amendment to Licence GL-99, the Board has decided that it would be preferable, for administrative purposes, to issue a new licence for the requested volumes for the period 1 November 1994 to 31 October 2005. Governor in Council approval of the licence is required before the decision comes into effect. Appendix I contains the terms and conditions of the proposed licence.

R. B. Horner, Q.C.
Presiding Member

A. B. Gilmour
Member

D. B. Smith
Member

Ottawa, Canada
May, 1989

Terms and Conditions of the Licence to be Issued to Alberta and Southern

1. The term of the Licence shall be for the period commencing on 1 November 1994 and ending on 31 October 2005.

2. The quantity of gas that may be exported under the authority of this Licence shall not exceed:

   (a) 31 900 000 cubic metres in any one day;

   (b) 10 580 500 000 cubic metres in any consecutive twelve-month period ending on the 31st day of October; or

   (c) 116 385 000 000 cubic metres during the term of this Licence.

3. Notwithstanding paragraph 2(b), the Licensee may during the term of the Licence export a quantity of gas during any consecutive twelve-month period ending on 31 October which quantity when added to the cumulative quantity exported to date, will not exceed the sum of the annual quantities authorized to that date.

4. As a tolerance, the amount the Licensee may export in any 24-hour period under the authority of this Licence may exceed the daily limitation imposed in condition 2(a) by ten percent.

5. Gas to be exported under the authority of this Licence shall be delivered to the point of export near Kingsgate, British Columbia.

Table 1

Estimates of Remaining Established Reserves Available to Alberta and Southern
(TCF)

Supply	Alberta and Southern[1]	NEB[2]
Current Fields[3]	4.47	4.18
New Fields[4]		
Alberta	1.06	0.69
British Columbia	0.39	0.35
Total Established:	5.92	5.22

1. The Alberta and Southern estimate of remaining established reserves is as of 1 October 1988.
2. The Board's estimate of remaining established reserves is as of 31 December 1987.
(The 10-month discrepancy in the estimates does not significantly affect their comparability).
3. Existing gas purchase contracts.
4. Mainly development contracts with the nine companies listed previously.

Table 2

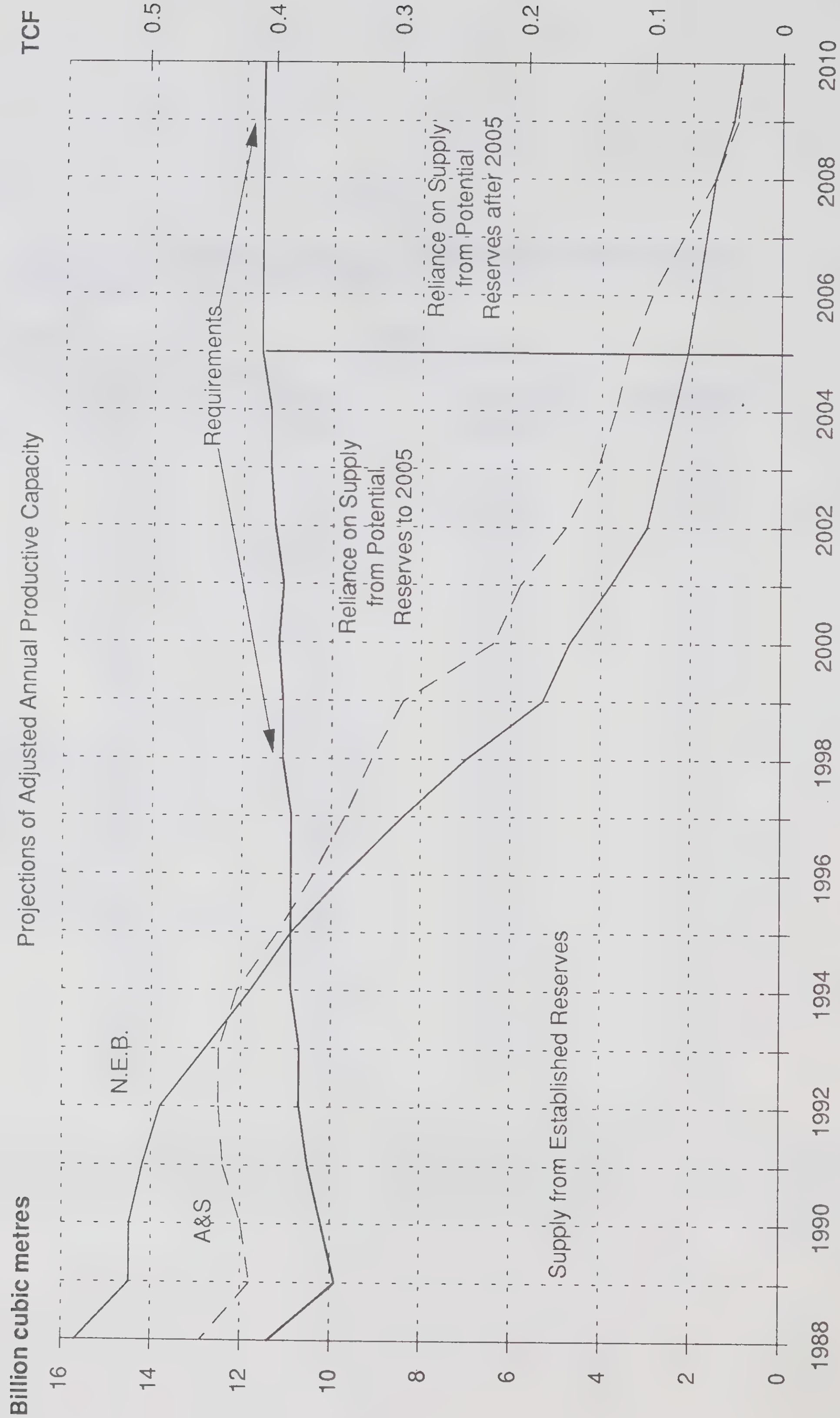
Estimates of Productive Capacity From Established Reserves
(TCF)

Year	Estimated Demand	NEB Productive Capacity	NEB Surplus/ (deficit)	Alberta and Southern[1] Productive Capacity	Alberta and Southern[1] Surplus/ (deficit)
1988	0.40	0.55	0.15	0.46	0.05
1989	0.35	0.51	0.16	0.42	0.07
1990	0.36	0.51	0.15	0.42	0.06
1991	0.37	0.50	0.13	0.44	0.07
1992	0.38	0.49	0.11	0.44	0.06
1993	0.38	0.45	0.07	0.44	0.06
1994	0.38	0.42	0.03	0.43	0.04
1995	0.38	0.38	0.00	0.40	0.01
1996	0.38	0.34	(0.04)	0.37	(0.02)
1997	0.38	0.30	(0.09)	0.34	(0.04)
1998	0.39	0.25	(0.14)	0.32	(0.07)
1999	0.39	0.19	(0.20)	0.30	(0.10)
2000	0.40	0.17	(0.23)	0.23	(0.17)
2001	0.39	0.13	(0.26)	0.20	(0.19)
2002	0.40	0.11	(0.29)	0.17	(0.23)
2003	0.40	0.10	(0.31)	0.14	(0.26)
2004	0.40	0.08	(0.32)	0.13	(0.27)
2005	0.41	0.07	(0.34)	0.12	(0.29)
2006	0.41	0.07	(0.34)	0.10	(0.31)
2007	0.41	0.06	(0.35)	0.08	(0.33)
2008	0.41	0.05	(0.36)	0.05	(0.36)
2009	0.41	0.04	(0.37)	0.04	(0.37)
2010	0.34	0.03	(0.30)	0.03	(0.30)

1 Alberta and Southern's productive capacity was adjusted by the Board using a rate cumulative methodology. Productive capacity is generally the estimated rate at which gas can be produced from a reservoir and is dependent upon prior production from the reservoir. The rate cumulative method is a means of determining productive capacity by taking account of expected levels of production over time.

Figure 1

ALBERTA AND SOUTHERN SUPPLY AND REQUIREMENTS



Derived from Chapter 2 Table 2

Table 3

Analysis of Supply Necessary to Meet Requirements
(TCF)

	1995-2005		2006-2010	
Total Requirements	**122.9**		**56.0**	
	A&S	**NEB**	**A&S**	**NEB**
Established Reserves from Current Fields	1.66	1.34	0.17	0.11
Established Reserves from New Fields	1.06	0.77	0.13	0.14
Total Established	2.71	2.11	0.30	0.25
Reliance on Established Reserves	63%	49%	15%	13%
Required Supply from Potential Reserves under Development Contracts and New Contracts	1.63	2.23	1.68	1.73
Reliance on Supply from Potential Reserves under Development Contracts and New Contracts	37%	51%	85%	87%